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MISSION ANALYSIS PAYLOAD INTEGRATION STUDY
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MONTHLY PROGRESS REPORT

NOVEMBER 1984

COMMERCE LAB: MISSION ANALYSIS PAYLOAD INTEGRATION STUDY

NASA CONTRACT NUMBER NAS8-36109

Prepared for

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**PROGRAM MONTHLY STATUS REPORT
FOR NOVEMBER 1984
FOR
COMMERCE LAB: MISSION ANALYSIS
PAYLOAD INTEGRATION STUDY**

NASA CONTRACT NO. NAS8-36109

A. PROGRAM DESCRIPTION

The Commerce Lab mission analysis and payload integration study will develop a mission model which will accommodate commercial users and provide a basic data base for further mission planning. The data bases to be developed under this study will be (1) user requirements, (2) apparatus capabilities and availabilities, and (3) carrier capabilities. These data bases will be synthesized in a trades and analysis phase along with the STS flight apparatus, and optimum missions will be identified. During the mission planning phase of the study, the final manifesting will be recommended.

B. WORK COMPLETED DURING NOVEMBER

Based on a redirected emphasis in a prior meeting with NASA personnel and particularly from Mr. John Williams, several activities were accomplished:

1. The user requirements data base was greatly expanded to identify within the six scientific disciplines the areas of investigation, investigation categories and status, potential commercial application, interested parties, process, and experiment requirements.
2. The scope of the apparatus data base was expanded to indicate apparatus status as to whether it is ground or flight equipment and, within both categories, whether the apparatus is (a) existing, (b) under development, (c) planned, or (d) needed. The apparatus developer is indicated as NASA, academia, or industry. Applications for the apparatus are listed. Apparatus characteristics are recorded in the following categories: (a) functional, (b) operational, (c) resource requirements, and (d) physical parameters.
3. The carrier capabilities data base has been updated and completed.
4. The overall system methodological approach for conducting the Commerce Lab study has been revamped per several working sessions with Mr. John Williams and Mr. Harry Adkins. Other contributors involved in the revision of the technical approach were Mr. Harry Craft and Mr. John Sims. The methodology was particularly revised in the areas of (a) trades and analysis and (b) mission planning.
5. The interim report will be available on December 6, 1984. Data base information, which includes all data sheets for user requirements, apparatus capabilities, and carrier capabilities as well as the logic diagrams and

flowcharts depicting the methodological study approach, are included in an appendix, which is a separate volume from the interim report.

6. At the request of NASA, two presentations were given during November. These were as follows:
 - a. A two-hour presentation was made to NASA (Mr. Downey et al) on November 21 at MSFC.
 - b. A one-hour version of the presentation was made to the NASA Commercial Advocacy Group (CAG) on November 29 at MSFC.

Both presentations provided an overview of the Commerce Lab study, the methodological approach, data bases and results, and integration considerations, including a concept intended to provide minimal user interaction in the Spacelab integration process. A modular rack/modular container concept that has potential for reducing the user interaction during the integration process was presented.

C. SCHEDULE

The attached program schedule for the Commerce Lab study program (exhibit A) depicts the relative status of each major program activity and the schedule for the various reports. Progress during and through November is as follows:

1. User Requirements, Apparatus, and Carrier Capabilities

This group of activities is nearing completion. It has been emphasized throughout the study that these data bases will be updated as additional data and information is discovered. These activities will be receiving less resources with the emphasis shifting to the remaining tasks.

2. Approach, Trades, and Analysis

The development of the technical approach, including the flow diagrams and logic network to be used in the trades and analysis task and the mission planning task, was finalized during November. The application will begin in December with trades and analysis.

3. Commerce Lab Mission Planning, etc.

This activity, as indicated on the program schedule, will not commence until December.

4. Reports

Reports are as shown on the schedule. The interim report scheduled for release in November will be forthcoming on December 6, 1984. The change in this was mandated by the two presentations given in November so that revisions could be incorporated into the report.

D. POTENTIAL PROBLEMS

No potential problems have been identified.

E. WORK PROJECTED IN THE NEXT REPORTING PERIOD

During December the work on the first major activity of the study (requirements/capabilities data base) will proceed at a much reduced level of effort. The primary thrust will be in the trades and analysis activity with some initial work in mission planning activity.

A Commerce Lab presentation is planned in December at NASA Headquarters for Mr. Sander et al. The date has not yet been established. The presentation will cover the same topics that were in the presentation at NASA/MSFC.

F. ACTION ITEMS REQUIRED TO CUSTOMER

Coordinate the Commerce Lab presentation at NASA Headquarters and arrange for time, place, and attendees.

G. CHANGE OF SCOPE

None identified at this time.

Exhibit A

PROGRAM SCHEDULE

